In the Claims:

The entire set of pending claims, numbered 1 through 17, are cancelled. Twenty new claims numbered 18 through 37 are presented as follows.

18. (new) A multi-channel densitometer for measuring optical density of sample areas, said densitometer comprising:

from 3 to 8 sensors distributed on a probe and facing said sample areas, such that each said sensor receives light impinging first upon the sample area opposite said sensor, and thence from said sample area to a light detector of said sensor, and has an output characteristic of the light intensity incident on said light detector; and

a controller circuit electrically connected to each said sensor, said controller circuit providing power to said sensors, and receiving said outputs from said sensors;

whereby said controller circuit collects signals characteristic of the optical density of said sample areas at positions opposite the respective sensors.

19. (new) A multi-channel densitometer as set forth in Claim 18, and further including an output of optical density values to a receiving device from the group consisting of host computers, networks, alphanumeric displays, graphic displays, digital storage devices, digital-to-analog converters, and means for adjusting subsequent sample processing.

20. (new) A multi-channel densitometer as set forth in Claim 18, and further including means to compute a multi-channel function of optical density from the group of function types consisting of uniformity, net density, transfer efficiency, and color.

21. (new) A multi-channel densitometer as set forth in Claim 20, and further including an output of a multi-channel function of optical density to a receiving device from the group consisting of host computers, networks, alphanumeric displays, graphic

displays, digital storage devices, digital-to-analog converters, and means for adjusting subsequent sample processing.

22. (new) A multi-channel densitometer as set forth in Claim 18, and further including, for each said sensor, a light emitter, where said light emitter emits light impinging first upon the sample area opposite said sensor, and thence from said sample area to said sensor, said emitter and said sensor forming an emitter-sensor pair.

23. (new) A multi-channel densitometer as set forth in Claim 22, wherein at least one said emitter-sensor pair comprises a spectrally broad-band or white light emitter and a sensor with a limited band of spectral responsivity, whereby the optical density of said sample areas can be measured in the color corresponding to the spectral responsivity.

24. (new) A multi-channel densitometer as set forth in Claim 22, wherein said light emitters are light emitting diodes.

25. (new) A multi-channel densitometer as set forth in Claim 22, wherein a plurality of said emitter-sensor pairs are of differing emitter color or peak wavelength, whereby when said sample areas are of differing colors, they can be measured with high sensitivity using light of complementary colors to the respective areas, and whereby said sample areas of the same color can be characterized in color by a set of measurements using light of different colors.

26. (new) A multi-channel densitometer as set forth in Claim 18, and further including, for at least one said sensor, a plurality of light emitters of differing color or peak emission wavelength, selectively energized one at a time, illuminating substantially the same sample spot opposite said sensor, whereby said sample areas of differing colors,

in the same cross-track position, can be measured in turn with high sensitivity as said sample areas pass, by using light of complementary color to the respective areas.

27. (new) A multi-channel densitometer as set forth in Claim 18, and further including, for at least one said sensor, a set of three light emitters of red, green, and blue color, successively energized one at a time, illuminating substantially the same sample spot opposite said sensor, whereby a set of three output values of said sensor characterizes the color of said sample area.

28. (new) A multi-channel densitometer for measuring optical density of sample areas, said densitometer comprising:

from 2 to 8 independently locatable probes, each having from 1 to 8 sensors facing said sample areas, such that each said sensor receives light impinging first upon the sample area opposite said sensor, and thence from said sample area to a light detector of said sensor, and has an output characteristic of the light intensity incident on said light detector; and

a controller circuit electrically connected to each said probe, said controller circuit providing power to said sensors, and receiving said outputs from said sensors;

whereby said controller circuit collects signals characteristic of the optical density of said sample areas at positions opposite the respective sensors.

29. (new) A multi-channel densitometer as set forth in Claim 28, and further including an output of optical density values to a receiving device from the group consisting of host computers, networks, alphanumeric displays, graphic displays, digital storage devices, digital-to-analog converters, and means for adjusting subsequent sample processing.

30. (new) A multi-channel densitometer as set forth in Claim 28, and further including means to compute a multi-channel function of optical density from the group of function types consisting of uniformity, net density, transfer efficiency, and color.

31. (new) A multi-channel densitometer as set forth in Claim 30, and further including an output of a multi-channel function of optical density to a receiving device from the group consisting of host computers, networks, alphanumeric displays, graphic displays, digital storage devices, digital-to-analog converters, and means for adjusting subsequent sample processing.

32. (new) A multi-channel densitometer as set forth in Claim 28, and further including, for each said sensor, a light emitter, where said light emitter emits light impinging first upon the sample area opposite said sensor, and thence from said sample area to said sensor, said emitter and said sensor forming an emitter-sensor pair.

33. (new) A multi-channel densitometer as set forth in Claim 32, wherein at least one said emitter-sensor pair comprises a spectrally broad-band or white light emitter and a sensor with a limited band of spectral responsivity, whereby the optical density of said sample areas can be measured in the color corresponding to the spectral responsivity.

34. (new) A multi-channel densitometer as set forth in Claim 32, wherein a plurality of said emitter-sensor pairs are of differing emitter color or peak wavelength, whereby when said sample areas are of differing colors, they can be measured with high sensitivity using light of complementary colors to the respective areas, and whereby said sample areas of the same color can be characterized in color by a set of measurements using light of different colors.

35. (new) A multi-channel densitometer as set forth in Claim 28, and further including, for at least one said sensor, a plurality of light emitters of differing color or peak emission wavelength, selectively energized one at a time, illuminating substantially the same sample spot opposite said sensor, whereby said sample areas of differing colors, in the same cross-track position, can be measured in turn with high sensitivity as said sample areas pass, by using light of complementary color to the respective areas.

36. (new) A multi-channel densitometer as set forth in Claim 28, and further including, for at least one said sensor, a set of three light emitters of red, green, and blue color, successively energized one at a time, illuminating substantially the same sample spot opposite said sensor, whereby a set of three output values of said sensor characterizes the color of said sample area.

37. (new) A multi-channel densitometer as set forth in Claim 28, wherein a plurality of said probes are of different length from each other, each having a sensor at one end, and mounted with the other end opposite the sample edge, whereby density measurements are obtained at distances from the sample edge according to the lengths of said probes.